

# The Knowledge Assessment Scale and Knowledge Application Scale: Testing Assimilation, Accommodation, and Anticipation in Simulation with DML

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## Background

- Assimilation—when knowledge fits previous schema.
- Accommodation—when knowledge opposes previous schema.
- Debriefing for Meaningful Learning<sup>®</sup> (DML)
  - Reflection-in-Action
  - Reflection-on-Action
  - Reflection-beyond-Action
- Assimilation and accommodation are the ultimate goals in a practice profession and the essence of reflection” (Dreifuerst, 2009, p. 111)

## Purpose

- The purpose of this study is to investigate the stability of the psychometric properties of the Knowledge Assessment Scale (KAS) and Knowledge Application Scale (KAPS); objective instruments which measure student’s ability to assimilate, accommodate and anticipate following simulation with DML Debriefing.

## Sample Test Item

Scenario:  
 Opioid Induced Respiratory Depression      Reflection-Beyond-Action: Anaphylaxis

Knowledge Assessment Scale (KAS)	Knowledge Application Scale (KAPS)
Which of the following medications should the nurse prepare to administer?	Which of the following medications should the nurse prepare to administer?
a. Naloxone—CORRECT	a. Naloxone
b. Flumazenil	b. Flumazenil
c. Dantrolene	c. Dantrolene
d. Epinephrine	d. Epinephrine—CORRECT

## Blueprinted for General Use

Knowledge Assessment Scale (KAS)	Knowledge Application Scale (KAPS)
Priority medication for administration	Priority medication for administration (Accommodation)

## Methods

- Initial Development and Testing
- Freeware: Test Analysis Program (TAP) 4.2.5 (Brooks & Johanson, 2003)
- KAS and KAPS developed for respiratory depression and anaphylaxis (Johnson, 2018, 2019).
  - **119 students, 1 Southwestern multi-campus university**
  - **Advanced Medical/Surgical Course**
  - **Demonstrated norm referenced and criterion referenced validity and moderate item stability reliability.**
- Research Study 2: KAS and KAPS developed for Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus.
  - **Ongoing--600+ students, 5 universities**
  - **Medical/Surgical Course**
  - **Data collection in progress**
  - **Item/Instrument sensitivity and mismatch**
- Research Study 3: KAS and KAPS developed for sepsis and anaphylaxis.
  - **Completed—40 students, 1 Midwestern university**
  - **Final semester Transitions course**
  - **Data collection in progress**

## Implications

- Assimilation and accommodation are linked to anticipation of future situations where similarities and differences exist
- DML facilitates assimilation, accommodation, anticipation
- Blueprint development makes this applicable to numerous simulations and populations of students
- Assists with curriculum sequencing within and between courses and semesters